

SEQUENCE LISTING

<110> Bellacosa, Alfonso
 <120> Methods for Detection of Transition
 Single-Nucleotide Polymorphisms
 <130> FCCC 96-21
 <140> 09/629,222
 <141> 2000-07-31
 <150> 09/463,891
 <151> 2000-01-28
 <150> PCT/US98/15828
 <151> 1998-07-28
 <150> 60/053,936
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35 40 45
Asp Glu Glu Gln Met Met Ile Lys Arg Ser Ser Glu Cys Asn Pro Leu
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Leu Gln Glu Pro Ile Ala Ser Ala Gln Phe Gly Ala Thr Ala Gly Thr
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Glu Cys Arg Lys Ser Val Pro Cys Gly Trp Glu Arg Val Val Lys Gln
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Arg Leu Phe Gly Lys Thr Ala Gly Arg Phe Asp Val Tyr Phe Ile Ser
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Pro Gln Gly Leu Lys Phe Arg Ser Lys Ser Ser Leu Ala Asn Tyr Leu
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His Lys Asn Gly Glu Thr Ser Leu Lys Pro Glu Asp Phe Asp Phe Thr
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Val Leu Ser Lys Arg Gly Ile Lys Ser Arg Tyr Lys Asp Cys Ser Met
145 150 155 160
Ala Ala Leu Thr Ser His Leu Gln Asn Gln Ser Asn Asn Ser Asn Trp
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Asn Leu Arg Thr Arg Ser Lys Cys Lys Lys Asp Val Phe Met Pro Pro
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195 200 205
Ser Thr His Leu Leu Leu Lys Glu Asp Glu Gly Val Asp Asp Val Asn
210 215 220
Phe Arg Lys Val Arg Lys Pro Lys Gly Lys Val Thr Ile Leu Lys Gly
225 230 235 240
Ile Pro Ile Lys Lys Thr Lys Gly Cys Arg Lys Ser Cys Ser Gly
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260 265 270
Ala Glu Ser Glu Pro Val Ala Gln Lys Ser Gln Leu Asp Arg Thr Val
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Cys Ile Ser Asp Ala Gly Ala Cys Gly Glu Thr Leu Ser Val Thr Ser
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Glu Glu Asn Ser Leu Val Lys Lys Lys Glu Arg Ser Leu Ser Ser Gly
305 310 315 320
Ser Asn Phe Cys Ser Glu Gln Lys Thr Ser Gly Ile Ile Asn Lys Phe
325 330 335
Cys Ser Ala Lys Asp Ser Glu His Asn Glu Lys Tyr Glu Asp Thr Phe
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Leu Glu Ser Glu Glu Ile Gly Thr Lys Val Glu Val Val Glu Arg Lys
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Glu His Leu His Thr Asp Ile Leu Lys Arg Gly Ser Glu Met Asp Asn
370 375 380
Asn Cys Ser Pro Thr Arg Lys Asp Phe Thr Gly Glu Lys Ile Phe Gln
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Glu Asp Thr Ile Pro Arg Thr Gln Ile Glu Arg Arg Lys Thr Ser Leu
405 410 415
Tyr Phe Ser Ser Lys Tyr Asn Lys Glu Ala Leu Ser Pro Pro Arg Arg
420 425 430
Lys Ala Phe Lys Lys Trp Thr Pro Pro Arg Ser Pro Phe Asn Leu Val
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Gln Glu Thr Leu Phe His Asp Pro Trp Lys Leu Leu Ile Ala Thr Ile
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 465 470 475 480
 Phe Leu Glu Lys Tyr Pro Ser Ala Glu Val Ala Arg Thr Ala Asp Trp
 485 490 495
 Arg Asp Val Ser Glu Leu Leu Lys Pro Leu Gly Leu Tyr Asp Leu Arg
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 Ala Lys Thr Ile Val Lys Phe Ser Asp Glu Tyr Leu Thr Lys Gln Trp
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 Lys Tyr Pro Ile Glu Leu His Gly Ile Gly Lys Tyr Gly Asn Asp Ser
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 Tyr Arg Ile Phe Cys Val Asn Glu Trp Lys Gln Val His Pro Glu Asp
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<220>
 <221> misc_feature
 <222> (0)...(0)
 <223> n at any position = methylcytosine

<400> 3

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46

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<220>
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<220>
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 caggatcaaa acgttcactt gctaattatc ttctcaaaaa tggggagact tttcttaagc 300
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19

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 <220>
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 <400> 7
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22

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21

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<400> 9
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20

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<220>
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<400> 10
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21

<210> 11
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<212> DNA
<213> Artificial Sequence

<220>
<223> PCR primer

<400> 11
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21

<210> 12
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<220>
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<400> 12
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21

<210> 13
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<400> 13
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21

<210> 14
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21

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<210> 20
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<400> 20
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<210> 21
<211> 261
<212> DNA
<213> Mus musculus

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aaggcatttag gaaggaaaat a 261

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<211> 419
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature:
<222> (0)...(0)
<223> n at any position may be a, t, c, or g

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<213> Homo sapiens

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 Asp Glu Glu Gln Met Met Ile Lys Arg Ser Ser Glu Cys Asn Pro Leu
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 Leu Gln Glu Pro Ile Ala Ser Ala Gln Phe Gly Ala Thr Ala Gly Thr
 65 70 75 80
 Glu Cys Arg Lys Ser Val Pro Cys Gly Trp Glu Arg Val Val Lys Gln
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 Arg Leu Phe Gly Lys Thr Ala Gly Arg Phe Asp Val Tyr Phe Ile Ser
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 His Lys Asn Gly Glu Thr Ser Leu Lys Pro Glu Asp Phe Asp Phe Thr
 130 135 140
 Val Leu Ser Lys Arg Gly Ile Lys Ser Arg Tyr Lys Asp Cys Ser Met
 145 150 155 160
 Ala Ala Leu Thr Ser His Leu Gln Asn Gln Ser Asn Asn Ser Asn Trp
 165 170 175
 Asn Leu Arg Thr Arg Ser Lys Cys Lys Lys Asp Val Phe Met Pro Pro
 180 185 190
 Ser Ser Ser Ser Glu Leu Gln Glu Ser Arg Gly Leu Ser Asn Phe Thr
 195 200 205
 Ser Thr His Leu Leu Leu Lys Glu Asp Glu Gly Val Asp Asp Val Asn
 210 215 220
 Phe Arg Lys Val Arg Lys Pro Lys Gly Lys Val Thr Ile Leu Lys Gly
 225 230 235 240
 Ile Pro Ile Lys Lys Thr Lys Lys Gly Cys Arg Lys Ser Cys Ser Gly
 245 250 255
 Phe Val Gln Ser Asp Ser Lys Arg Glu Ser Val Cys Asn Lys Ala Asp
 260 265 270
 Ala Glu Ser Glu Pro Val Ala Gln Lys Ser Gln Leu Asp Arg Thr Val
 275 280 285
 Cys Ile Ser Asp Ala Gly Ala Cys Gly Glu Thr Leu Ser Val Thr Ser
 290 295 300
 Glu Glu Asn Ser Leu Val Lys Lys Glu Arg Ser Leu Ser Ser Gly
 305 310 315 320
 Ser Asn Phe Cys Ser Glu Gln Lys Thr Ser Gly Ile Ile Asn Lys Phe
 325 330 335
 Cys Ser Ala Lys Asp Ser Glu His Asn Glu Lys Tyr Glu Asp Thr Phe
 340 345 350
 Leu Glu Ser Glu Glu Ile Gly Thr Lys Val Glu Val Val Glu Arg Lys

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Thr Pro Pro Arg Ser Pro Phe Asn Leu Val Gln Glu Thr Leu Phe His		
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Asp Pro Trp Lys Leu Leu Ile Ala Thr Ile Phe Leu Asn Arg Thr Ser		
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Gly Lys Met Ala Ile Pro Val Leu Trp Lys Phe Leu Glu Lys Tyr Pro		
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485 490 495		
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Phe Ser Asp Glu Tyr Leu Thr Lys Gln Trp Lys Tyr Pro Ile Glu Leu		
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<400> 25

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tttggtgcta	ctgcaggaac	agaatgccgt	aagtctgtcc	catgtggatg	gaaaagagtt	420
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agatataaaag	actgcagcat	ggcagccctg	acatcccatc	tacaaaacca	aagtaacaat	660
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 <211> 2152
 <212> DNA
 <213> Homo sapiens

<400> 26

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<210> 27
 <211> 2152
 <212> DNA
 <213> Homo sapiens

<400> 27

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atgataaaaaa gaagcagtga atgtatccc ttgctacaag aaccatcgc ttctgctcag	360
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taattagccc	aactagaagc	ctagtgtgt	tgctttctta	atgtgtgtc	caatgggaa	2040
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<210> 28

<211> 942

<212> DNA

<213> Homo sapiens

<400> 28

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attgtgttcc	tggctgggg	gaagcgagt	gcatgtgggt	tttgggggtt	ttgatcagta	180
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gtgggtttcc	tcctgtcaaa	agtacaccac	tacagggaaag	cagaagggtt	tggcccttgc	360
aatgtatgca	tattgggtt	ctcttagtgg	tctcagacta	cgtttgtgt	gactgggtcc	420
tgcttcagcc	ctgttgaata	tgcccgacct	gtggcatgt	ggtggtcatc	ctggcagctg	480
gtgggtggcc	tggtatgtc	cccactcagc	ttgagactca	ccctcatgca	ttcagccagt	540
aggctctggcc	aaggctgaac	tgaaggacca	ttggccatc	ccagcttcat	cacagaatc	600
cattgtgacc	tgagaatcca	ttaacctct	cggtctagaa	cctcccttctg	gaaagtgggg	660
tattaatact	tgactcaat	ttatcgccac	cccacattt	aagtcatgtt	tgagtagtaa	720
tttggacagt	accttgtaaa	ttgtgtgaga	ttaccttaat	ataaggtata	acttaaaata	780
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cccccagcaa	acatttaaaa	agccaatttt	aaaaatgtt	tttctgacta	agttacattt	900
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<210> 29

<211> 384

<212> PRT

<213> Mus musculus

<400> 29

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									20		25			30	
Ala	Ser	Thr	Leu	Ser	Ser	Thr	Thr	Ala	Thr	Glu	Gly	His	Lys	Pro	Val
									35		40			45	
Pro	Cys	Gly	Trp	Glu	Arg	Val	Val	Lys	Gln	Arg	Leu	Ser	Gly	Lys	Thr

50	55	60													
Ala	Gly	Lys	Phe	Asp	Val	Tyr	Phe	Ile	Ser	Pro	Gln	Gly	Leu	Lys	Phe
65					70					75					80
Arg	Ser	Lys	Arg	Ser	Leu	Ala	Asn	Tyr	Leu	Leu	Lys	Asn	Gly	Glu	Thr
					85				90					95	
Phe	Leu	Lys	Pro	Glu	Asp	Phe	Asn	Phe	Thr	Val	Leu	Pro	Lys	Gly	Ser
			100					105				110			
Ile	Asn	Pro	Gly	Tyr	Lys	His	Gln	Ser	Leu	Ala	Ala	Leu	Thr	Ser	Leu
			115				120				125				
Gln	Pro	Asn	Glu	Thr	Asp	Val	Ser	Lys	Gln	Asn	Leu	Lys	Thr	Arg	Ser
			130			135				140					
Lys	Trp	Lys	Thr	Asp	Val	Leu	Pro	Leu	Pro	Ser	Gly	Thr	Ser	Glu	Ser
			145			150			155					160	
Pro	Glu	Ser	Ser	Gly	Leu	Ser	Asn	Ser	Asn	Ser	Ala	Cys	Leu	Leu	
					165			170					175		
Arg	Glu	His	Arg	Asp	Ile	Gln	Asp	Val	Asp	Ser	Glu	Lys	Arg	Arg	Lys
					180			185				190			
Ser	Lys	Arg	Lys	Val	Thr	Val	Leu	Lys	Gly	Thr	Ala	Ser	Gln	Lys	Thr
					195			200				205			
Lys	Gln	Lys	Cys	Arg	Lys	Ser	Leu	Leu	Glu	Ser	Thr	Gln	Arg	Asn	Arg
					210			215			220				
Lys	Arg	Ala	Ser	Glu	Asp	Ser	Ile	Pro	Arg	Thr	Gln	Val	Glu	Lys	Arg
					225			230			235				240
Lys	Thr	Ser	Leu	Tyr	Phe	Ser	Ser	Lys	Tyr	Asn	Lys	Glu	Ala	Leu	Ser
					245				250					255	
Pro	Pro	Arg	Arg	Lys	Ser	Phe	Lys	Lys	Trp	Thr	Pro	Pro	Arg	Ser	Pro
					260			265				270			
Phe	Asn	Leu	Val	Gln	Glu	Ile	Leu	Phe	His	Asp	Pro	Trp	Lys	Leu	Leu
					275			280				285			
Ile	Ala	Thr	Ile	Phe	Leu	Asn	Arg	Thr	Ser	Gly	Lys	Met	Ala	Ile	Pro
					290			295			300				
Val	Leu	Trp	Glu	Phe	Leu	Glu	Lys	Tyr	Pro	Ser	Ala	Glu	Val	Ala	Arg
					305			310			315				320
Ala	Ala	Asp	Trp	Arg	Asp	Val	Ser	Glu	Leu	Leu	Lys	Pro	Leu	Gly	Leu
					325				330				335		
Tyr	Asp	Leu	Arg	Ala	Lys	Thr	Ile	Ile	Lys	Phe	Ser	Asp	Glu	Tyr	Leu
					340			345				350			
Thr	Lys	Gln	Trp	Arg	Tyr	Pro	Ile	Glu	Leu	His	Gly	Ile	Trp	Leu	Lys
					355			360			365				
Tyr	Gly	Asn	Asp	Ser	Tyr	Arg	Ile	Phe	Cys	Val	Asn	Glu	Trp	Lys	Gln
					370			375			380				

<210> 30
<211> 119
<212> PRT
<213> *Homo sapiens*

<400> 30

<210> 31
<211> 132
<212> PRT
<213> Rattus

<400> 31
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His Ser Ala Glu Pro Ala Glu Ala Gly Lys Ala Glu Thr Ser Glu Ser
20 25 30
Ser Gly Ser Ala Pro Ala Val Pro Glu Ala Ser Ala Ser Pro Lys Gln
35 40 45
Arg Arg Ser Ile Ile Arg Asp Arg Gly Pro Met Tyr Asp Asp Pro Thr
50 55 60
Leu Pro Glu Gly Trp Thr Arg Lys Leu Lys Gln Arg Lys Ser Gly Arg
65 70 75 80
Ser Ala Gly Lys Tyr Asp Val Tyr Leu Ile Asn Pro Gln Gly Lys Ala
85 90 95
Phe Arg Ser Lys Val Glu Leu Ile Ala Tyr Phe Glu Lys Val Gly Asp
100 105 110

Thr Ser Leu Asp Pro Asn Asp Phe Asp Phe Thr Val Thr Gly Arg Gly
115 120 125
Ser Pro Ser Arg
130

<210> 32
<211> 126
<212> PRT
<213> Homo sapiens

<400> 32
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Gly Lys Met Ala Ile Pro Val Leu Trp Lys Phe Leu Glu Lys Tyr Pro
20 25 30
Ser Ala Glu Val Ala Arg Thr Ala Asp Trp Arg Asp Val Ser Glu Leu
35 40 45
Leu Lys Pro Leu Gly Leu Tyr Asp Leu Arg Ala Lys Thr Ile Val Lys
50 55 60
Phe Ser Asp Glu Tyr Leu Thr Lys Gln Trp Lys Tyr Pro Ile Glu Leu
65 70 75 80
His Gly Ile Gly Lys Tyr Gly Asn Asp Ser Tyr Arg Ile Phe Cys Val
85 90 95
Asn Glu Trp Lys Gln Val His Pro Glu Asp His Lys Leu Asn Lys Tyr
100 105 110
His Asp Trp Leu Trp Glu Asn His Glu Lys Leu Ser Leu Ser
115 120 125

<210> 33
<211> 184
<212> PRT
<213> E. coli

<400> 33
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20 25 30
Thr Pro Ala Ala Met Leu Glu Leu Gly Val Glu Gly Val Lys Thr Tyr
35 40 45
Ile Lys Thr Ile Gly Leu Tyr Asn Ser Lys Ala Glu Asn Ile Ile Lys

50	55	60	
Thr Cys Arg Ile Leu Leu Glu Gln His Asn Gly Glu Val Pro Glu Asp			
65	70	75	80
Arg Ala Ala Leu Glu Ala Leu Pro Gly Val Gly Arg Lys Thr Ala Asn			
85	90	95	
Val Val Leu Asn Thr Ala Phe Gly Trp Pro Thr Ile Ala Val Asp Thr			
100	105	110	
His Ile Phe Arg Val Cys Asn Arg Thr Gln Phe Ala Pro Gly Lys Asn			
115	120	125	
Val Glu Gln Val Glu Glu Lys Leu Leu Lys Val Val Pro Ala Glu Phe			
130	135	140	
Lys Val Asp Cys His His Trp Leu Ile Leu His Gly Arg Tyr Thr Cys			
145	150	155	160
Ile Ala Arg Lys Pro Arg Cys Gly Ser Cys Ile Ile Glu Asp Leu Cys			
165	170	175	
Glu Tyr Lys Glu Lys Val Asp Ile			
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<210> 34

<211> 188

<212> PRT

<213> M. thermoformicicum

<400> 34

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Ala Gly His Val Lys Lys Ile Tyr Asp Lys Phe Phe Val Lys Tyr Lys			
85	90	95	
Cys Phe Glu Asp Ile Leu Lys Thr Pro Lys Ser Glu Ile Ala Lys Asp			
100	105	110	
Ile Lys Glu Ile Gly Leu Ser Asn Gln Arg Ala Glu Gln Leu Lys Glu			
115	120	125	
Leu Ala Arg Val Val Ile Asn Asp Tyr Gly Gly Arg Val Pro Arg Asn			
130	135	140	
Arg Lys Ala Ile Leu Asp Leu Pro Gly Val Gly Lys Tyr Thr Cys Ala			
145	150	155	160
Ala Val Met Cys Leu Ala Phe Gly Lys Lys Ala Ala Met Val Asp Ala			
165	170	175	
Asn Phe Val Arg Val Ile Asn Arg Tyr Phe Gly Gly Ser Tyr Glu Asn			
180	185		
Leu Asn Tyr Asn His Lys Ala Leu Trp Glu Leu Ala Glu Thr Leu Val			
Pro Gly Gly Lys Cys Arg Asp Phe Asn Leu Gly Leu Met Asp Phe Ser			
195	200	205	210
Ala Ile Ile Cys Ala Pro Arg Lys Pro Lys Cys Glu Lys Cys Gly Met			
215	220	225	
Ser Lys Leu Cys Ser Tyr Tyr Glu Lys Cys Ser Thr			
230	235		

<210> 35

<211> 185

<212> PRT

<213> M. luteus

<400> 35

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35	40	45	
Asp Ala His Ala Met Ala Ala Ala Thr Glu Pro Glu Leu Gln Glu Leu			
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Val Arg Ser Thr Gly Phe Tyr Arg Asn Lys Ala Ser Ala Ile Leu Arg			
Leu Ser Gln Glu Leu Val Gly Arg His Asp Gly Glu Val Pro Ala Arg			

65	70	75	80
Leu Glu Asp Leu Val Ala Leu Pro Gly Val	Gly Arg Lys Thr Ala Phe		
85	90	95	
Val Val Leu Gly Asn Ala Phe Gly Gln Pro Gly Ile Thr Val Asp Thr			
100	105	110	
His Phe Gly Arg Leu Ala Arg Arg Leu Gly Phe Thr Asp Glu Thr Asp			
115	120	125	
Pro Gly Lys Gly Arg Ala Arg Arg Gly Arg Pro Val Pro Pro Ala Arg			
130	135	140	
Asp Trp Thr Met Leu Ser His Arg Leu Ile Phe His Gly Arg Arg Val			
145	150	155	160
Cys His Ala Arg Arg Pro Ala Cys Gly Arg Cys Pro Ile Ala Arg Trp			
165	170	175	
Cys Pro Ser Tyr Ala Ala Gly Glu Thr			
180	185		

<210> 36
 <211> 188
 <212> PRT
 <213> E. coli

<400> 36			
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Thr Val Thr Asp Leu Ala Asn Ala Pro Leu Asp Glu Val Leu His Leu			
35	40	45	
Trp Thr Gly Leu Gly Tyr Tyr Ala Arg Ala Arg Asn Leu His Lys Ala			
50	55	60	
Ala Gln Gln Val Ala Thr Leu His Gly Gly Lys Phe Pro Glu Thr Phe			
65	70	75	80
Glu Glu Val Ala Ala Leu Pro Gly Val Gly Arg Ser Thr Ala Gly Ala			
85	90	95	
Ile Leu Ser Leu Ser Leu Gly Lys His Phe Pro Ile Leu Asp Gly Asn			
100	105	110	
Val Lys Arg Val Leu Ala Arg Cys Tyr Ala Val Ser Gly Trp Pro Gly			
115	120	125	
Lys Lys Glu Val Glu Asn Lys Leu Trp Ser Leu Ser Glu Gln Val Thr			
130	135	140	
Pro Ala Val Gly Val Glu Arg Phe Asn Gln Ala Met Met Asp Leu Gly			
145	150	155	160
Ala Met Ile Cys Thr Arg Ser Lys Pro Lys Cys Ser Leu Cys Pro Leu			
165	170	175	
Gln Asn Gly Cys Ile Ala Ala Asn Asn Ser Trp			
180	185		

<210> 37
 <211> 85
 <212> PRT
 <213> Homo sapiens

<400> 37			
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Lys Thr Ala Gly Arg Phe Asp Val Tyr Phe Ile Ser Pro Gln Gly Leu			
35	40	45	
Lys Phe Arg Ser Lys Ser Ser Leu Ala Asn Tyr Leu His Lys Asn Gly			
50	55	60	
Glu Thr Ser Leu Lys Pro Glu Asp Phe Asp Phe Thr Val Leu Ser Lys			
65	70	75	80
Arg Gly Ile Lys Ser			

<210> 38
 <211> 76
 <212> PRT
 <213> Homo sapiens

<400> 38
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 20 25 30

Thr Tyr Tyr Gln Ser Pro Thr Gly Asp Arg Ile Arg Ser Lys Val Glu
 35 40 45
 Leu Thr Arg Tyr Leu Gly Pro Ala Cys Asp Leu Thr Leu Phe Asp Phe
 50 55 60
 Lys Gln Gly Ile Leu Cys Tyr Pro Ala Pro Lys Ala
 65 70 75

<210> 39
 <211> 24
 <212> DNA
 <213> Homo sapiens

<400> 39
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24

<210> 40
 <211> 14
 <212> DNA
 <213> Homo sapiens

<400> 40
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14

<210> 41
 <211> 16
 <212> DNA
 <213> Homo sapiens

<400> 41
 taaaaaaagga tgtagg

16

<210> 42
 <211> 10
 <212> DNA
 <213> Homo sapiens

<400> 42
 ggatgttagga

10

<210> 43
 <211> 17
 <212> PRT
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (0)...(0)

<223> Xaa at any position = any amino acid

<400> 43

Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Cys	Xaa	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa
1				5				10					15		
Cys															

<210> 44

<211> 866

<212> DNA

<213> Mus musculus

<400> 44

cttttttttt ttccttttaa	gcccacaagg	attgaagttc	agatcaaaac	gttcacttgc	60
taattatctt	ctcaaaaatg	gggagacttt	tcttaagcct	gaagatttta	120
actggcggaa	gggagcatca	atcccggtta	taaacaccaa	agtttggcag	180
cctgcagcca	aatgaaaactg	acgtttcaaa	gcagaacctc	aagacacgaa	240
aacagatgtg	ttgcctctgc	ccagtggtac	ttcagagtcg	ccagaaagca	300
taactctaac	tcggcttgct	tgctattgag	agaacatagg	gacattcagg	360
tgagaagagg	agaaaagtcca	aaagaaaggt	gactgtttt	aaaggaactg	420
aaccaaacaa	aagtgcagga	agagtcttctt	agagtctact	caaagaaaca	480
atctgtggtt	cagaagggtgg	gtgetgatcg	cgagctggtg	ccacaggaaa	540
cagaaccctc	tgcctgcag	atgcctgtgc	aagggagact	gttggcctgg	600
aaaatcacca	agcccaggac	tggatctttt	tttcatacaa	gtaacttctg	660
caaattccat	tcaactgaag	cagcaggtga	agcaaatctg	gaggagactt	720
agaggaaatc	agatcgaagg	gagacagaaa	gggggaggca	cattgcata	780
acaggatggc	tctgaaatgc	ccagctgctc	acaagccaag	aaacacttta	840
atttcaaggt	actcagtgca	tgaaaaa			866

<210> 45

<211> 121

<212> DNA

<213> Mus musculus

<400> 45

gactataaac	taattttgct	tctcagaaga	cagcatccca	cggacacaag	60
gaaaacaagc	ctgtatTTT	ccagcaagta	caacaaagaa	ggtacccacc	120
c				tttccctaag	121

<210> 46

<211> 166

<212> DNA

<213> Mus musculus

<220>

<221> misc_feature

<222> (0)...(0)

<223> n at any position may be a, t, c, or g

<400> 46

tatattttng	nagctcttag	ccccccaaga	cgcaaatcct	tcaagaaatg	60
cggcacctt	ttaatcttgt	tcaagaaata	ctttccatg	accatggaa	120
gcgactata	ttctcaatcg	gacctcaggt	tngggtcat	gctcctcatc	166

<210> 47

<211> 183

<212> DNA

<213> Mus musculus

<400> 47

tgttatgtct	ccccaggca	gatggccatc	cctgtgtgt	gggagtttct	60
ccttcagctg	aagtggcccg	agctgcccac	tggaggacg	tgtcgagct	120
				tctcaagcct	

cttgttctc acgatctccg tgcaaaaacc attatcaagt tctcaggtat gtcggcc
 cag 183

<210> 48
 <211> 143
 <212> DNA
 <213> Mus musculus

<400> 48
 tggatgtgta tcctcagat gaatatctga caaaggcgtg gaggtatccg attgagcttc
 atgggatttg gttaaaatat ggcaacgact ctacccgatc ttttgttca atgaatggaa
 caggttaagcc caccactggg gcc 143

<210> 49
 <211> 810
 <212> DNA
 <213> Homo sapiens

<400> 49
 tttgaaagac aggaaatact cccatagcac aagactggtc cacactgact ttaatctccc
 tcattttat atggataatc tatgtggttc ctgcattgtc atggattaaa actgagtagg
 cagtggaaaga taaattttaa ataagttaat cacttagact ttgttttcc agcaaagaag
 atgttgcata ggaattggaa agagtggag aagatgagga acaaattgtg ataaaaaagaa
 gcagtgaaatg taatcccttg ctacaagaac ccacatcgcttc tgctcagtt ggtgctactg
 caggaacacaga atgcccgtaaag tctgtcccat gtggatggga aagagttgtg aagcaaaggt
 tatttggaa gacagcagga agatttgatg tgcactttat caggttaagca tataagatgg
 taaagatgt acagccaaat gattttgtct gggcaggtag tgggagcata gcaggaatct
 tagctttttt atatttttac cataaaacca ttgcagatcc tatttttca atgttgcata
 taattacatc aagtgttttgc gggaaaattt catabatttt gtccttcctt ctgtgaatgg
 ttaacgggta ggtgcattt tagttatatt taaaatttttata tattgtcata gaggaaaccat
 taaaaggcc attatcaact ttttcaattt taaaatgaca gagaactatg gcaacatttgc
 gaaattaaattt agaatctgaa atgtggtcca gttttttaa aagtccttc tattttacttag
 cagtaagttt ctttaataat cattttcttag 810

<210> 50
 <211> 1017
 <212> DNA
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (0)...(0)
 <223> n at any position may be a, t, c, or g

<400> 50
 aatctgaaat gtggccagt tttttaaaaa gtccttcta tttactagca gtaagttcc
 ttaatatca tttctagcc cacaaggact gaagttcaga tccaaaagtt cacttgctaa
 ttatcttcac aaaaatggag agacttctct taagccagaa gattttgatt ttactgtact
 ttctaaaagg ggtatcaagt caagatataa agactgcagc atggcagccc tgacatccca
 ttcacaaaac caaagtaaca attcaactg gaacctcagg acccgaagca agtgcaaaaa
 ggtgtgtttt atgcccggaa gtagtagttc agagttgcag gagagcagag gactctctaa
 ctttacttcc actcatttgc ttttggaaaga agatgggggt gttgtatgt ttaacttccag
 aaaggttaga aagcccaaag gaaagggtac tttttgaaa ggaatcccaa ttaagaaaaac
 taaaaaaagga ttttaggaaga gctgttcagg ttttgcatttca agtgcata gaaaganaatc
 tttttttttt aagcagatg ctgaaagtga acctgttgc caaaaaagtc agcttgata
 aactgtctgc atttctgtatg ctggagcatg tggtagatc ctcagttgtga gcaatgtgaa
 aacacngccctt gtaaaaaaaa aagaaagatc attgagttca ggatcaaatt ttttttttca
 aaaaaaaact ttcggcatca taaacaaatt ttgttcagg aaagactcag aacacaacga
 gaagttatgag gatacctttt tagaatctgaa agaaatcgaa aaaaaagtag aagttgtgaa
 aaggaaagaa catttgcata ctgacattttt aaaaacgtggc tctgaaatgg acaacaactg
 ctcaccaacc agaaagact tcactgttca gaaaatattt caaggtatcc agtgcatttca
 gcaactattaa acatttagtga tgagaaattt atatgttgc ttttttttca gcaatgttca
 1017

<210> 51
<211> 613
<212> DNA
<213> Homo sapiens

<400> 51

tagtaccaag	ttcatgggtc	attagttaga	ttaattgggt	atttatgtaa	agggcttaga	60
atagtgcctg	gcatgcttgc	taatagtgtt	gatattatttta	tttgcattccc	tcaatattgc	120
tttaagctaa	accatagact	ccataaaagtg	tttacttttc	cttttcagaa	gataccatcc	180
cacgaacaca	gatagaaaaga	aggaaaacaa	gcctgttattt	ttccagcaaa	tataacaaag	240
aaggatccc	tttcccaatc	agaacagcaa	attctaaattc	cattttgggt	tttcaattct	300
gatgactat	gtttgtttag	ctcttagccc	cccacgacgt	aaagccttta	agaaatggac	360
acctcctcgg	tcacctttta	atctcgttca	agaaacactt	tttcatgatc	catggaagct	420
tctcatcgct	actatatttc	tcaatcgac	ctcaggtttg	gggatttattt	tcatctttgt	480
cttagtagag	acagtgtggt	agggagaaaag	cactgaattt	aggcctgggt	tcaaagtcat	540
tttgagtgtg	tcacctggga	tagggcatc	ccccttcac	ccttaaactc	ttcacctatg	600
aggaaaatgg	ggg					613

<210> 52

<211> 463

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (0)...(0)

<223> n at any position may be a, t, c, or g

<400> 52

ccagtgtttt	ttgttttttgc	ttttctttaa	aaaaaaaaaa	aaaccctctg	gatgagattt	60
ctatggaaaa	ctacttgaac	gtggaaatcg	cccaccttgg	gtcttgcatt	cattcagttt	120
cttttacntt	cccaggcaaa	atggcaatac	ctgtgttttgc	gaagtttctg	gagaagtatc	180
cttcagctga	ggtagcaaga	accgcagact	ggagagatgt	gtcagaactt	cttaaacctc	240
ttggtctcta	cgatcttcgg	gcaaaaacca	ttgtcaagtt	ctcaggtatt	ttcctataca	300
cccaaaggaa	aaacataata	cattgtgcctt	atthaagaga	gccacacctt	aaactttaat	360
gttctcagat	actatattaa	tggaggtttt	tcagctcaag	cattttaaaa	agtccacttt	420
tccccaaacc	acagtctccc	actgacctaa	acaataaattc	ttt		463

<210> 53

<211> 332

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature

<222> (0)...(0)

<223> n at any position may be a, t, c, or g

<400> 53

ctttagaagc	tgacacctata	atgtggatg	ttgttattctt	cagatgaata	cctgacaaag	60
cagtggaaat	atccaatttg	gcttcattgg	attggtaaat	atggcaacga	ctcttaccga	120
atttttgtg	tcaatgagtg	gaagcaggtg	aggctcaact	ccatccataa	ttcagcacat	180
ttggtctctg	aggcaaaata	agtcacccat	tatggtaag	acnattttt	ggggataca	240
atgcttattac	agtcacaaaca	attgtgttcc	tggctgcggg	gaagcgngt	gcatgtgggt	300
tttggggttt	ttgatcagta	ggcgctccca	gg			332

<210> 54

<211> 623

<212> DNA

<213> Homo sapiens

<220>

<221> misc_feature		
<222> (0)...(0)		
<223> n at any position may be a, t, c, or g		
<400> 54		
tgtgtgagat taccttaata taaggtataa cttaaaatat tcatgaatcc caggaggta	60	
aaggttataa cttaggtataa tggtatcgta atgtactgtc ccccagcaaa catttaaaaa	120	
gccaatttta aaaaatgtat ttctgactaa gttacatnta aggtctctgc ctctgtatct	180	
tatgtttctt ccaggtgcac cctgaagacc acaaattaaa taaatatcat gactggctt	240	
cccaaaaatca taaaaattaa agttatctt aaactctgca gcttcaago tcatctgtta	300	
tgcatacgctt tgcacttcaa aaaagcttaa ttaagtacaa ccaaccacct ttccagccat	360	
agagatttta attagccaa ctagaagcct agtgtgtgtg ctttcttaat gtgtgtgcca	420	
atggtggtatc tttgctactg aatgtgtttg aacatgtttt gagattttt taaaataaat	480	
tattatttga caacaatcca aaaaaaaatcc ggctttcca atgatgaaat ataatcagaa	540	
gatgaaaaat agttctaaac tatcaataat acaaagcaaa tttctatcag cttgtctaaa	600	
gctaggggcc cactaaatat ttt	623	
<210> 55		
<211> 24		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> primer		
<400> 55		
ctcggtgtgt tctgagcttt tggc	24	
<210> 56		
<211> 21		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> primer		
<400> 56		
cagtgtgacc agtgaagaaaa a	21	
<210> 57		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> primer		
<400> 57		
tgaaaggaat cccaaatataag	20	
<210> 58		
<211> 20		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> primer		
<400> 58		
gacagttcta tcaagctgac	20	

<210> 59
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (34)...(34)
<223> n = a, g, c, t

<400> 59
ccgtcatgct agttcacttt atgcttccgg ctncgtcat gtgtggaatt gtgattaaaa 60
tcg 63

<210> 60
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (31)...(31)
<223> n = a, g, c, t, u, e

<221> modified base
<222> (31)...(31)
<223> e = ethenocytosine

<400> 60
gcgattttaa tcacaattcc acacatgacg ngagccggaa gcataaagtg aactagcatg 60
acg 63

<210> 61
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (33)...(33)
<223> n = a, g, c, t

<400> 61
ccgtcatgct agttcacttt atgcttccgg ctngcgtcat gtgtggaatt gtgattaaaa 60
tcg 63

<210> 62
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (31)...(31)
<223> n = t, u

<221> misc_feature		
<222> (32)...(32)		
<223> n = a, g, c, t		
<400> 62		
gcgatttaa tcacaattcc acacatgacg nnagccggaa gcataaagtg aactagcatg	60	
acg	63	
<210> 63		
<211> 64		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<221> misc_feature		
<222> (35)...(35)		
<223> n = a, g, c, t		
<400> 63		
ccgtcatgct agttcactt atgttccgg ctcgnctca tgtgtggaat tgtgattaaa	60	
atcgt	64	
<210> 64		
<211> 65		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 64		
ccgtcatgct agttcactt atgttccgg ctcggtcgtc atgtgtgaa ttgtgattaa	60	
aatcgt	65	
<210> 65		
<211> 66		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 65		
ccgtcatgct agttcactt atgttccgg ctcggtaagt catgtgtgaa attgtgatta	60	
aaatcgt	66	
<210> 66		
<211> 67		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 66		
ccgtcatgct agttcactt atgttccgg ctcggtaaccg tcatgtgtgg aattgtgatt	60	
aaaatcgt	67	

<210> 67		
<211> 68		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 67		
ccgtcatgct agttcacttt atgcttccgg ctcggtaactc gtcatgtgtg gaattgtat	60	
taaaatcg	68	
<210> 68		
<211> 68		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 68		
ccgtcatgct agttcacttt atgcttccgg ctcggggggc gtcatgtgtg gaattgtat	60	
taaaatcg	68	
<210> 69		
<211> 62		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 69		
ccgtcatgct agttcacttt atgcttccgg ctcggtcatg tgtggaattt tgattttat	60	
cg	62	
<210> 70		
<211> 63		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 70		
gcgattttaa tcacaattcc acacatgacg cgagccggaa gcataaagtg aactagcatg	60	
acg	63	
<210> 71		
<211> 37		
<212> DNA		
<213> Artificial Sequence		
<220>		
<223> synthetic oligonucleotide		
<400> 71		
caatccttagc tgacacgatg tggccaatgg catgact	37	
<210> 72		
<211> 37		

<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (22)...(22)
<223> n = c, t, u, e

<221> modified_base
<222> (22)...(22)
<223> e = ethenocytosine

<400> 72

gagtcatgcc attggccaca tngtgtcagc taggatt...

37

<210> 73
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 73

gacttcactg gtgagaaaaat atttcaaggt

30